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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,757	04/17/2000	Steven T. Jaffe	34040/NEC/B600	1171

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EXAMINER	
LUGO, DAVID B	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,757	JAFFE ET AL.	
	Examiner	Art Unit	
	David B. Lugo	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-95 and 97* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-95 and 97* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 April 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 10/20/03 have been fully considered but they are not persuasive. Regarding independent claims 30, 40, 50, 60, 68, 78, 86 and 97, Applicant argues that Langberg et al. do not disclose "the ramped output being varied over time from a predetermined first value to a second value". The Examiner respectfully disagrees.

2. Langberg et al. disclose that after an initial set of precoder values are established during training, a new set of precoder values is determined that will compensate for the changes in the communications channel based on equalizer coefficient values and the current precoder values. That is, the current precoder values are slowly changed to a final set of precoder values (see col. 4, line 64 to col. 5, line 12). Since initially, the current precoder values are determined during a previous training period, the set of current values are considered to be predetermined. Hence, Langberg et al. is considered to disclose that the ramped output is varied over time from a predetermined first value to a second value, as claimed. The rejection of claims 30-95 and 97 is maintained.

Specification

3. The disclosure is objected to because of the following informalities:

In line 6 of the replacement paragraph beginning on page 33, line 28 of the specification, "79b" should be --79d-- (see page 4 of amendment dated 10/15/03).

Appropriate correction is required.

Claim Objections

4. Claims 40-49 are objected to because of the following informalities:

Claim 40, line 12, "the least one of the" should be --the at least one--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 30-32, 36, 37, 40-42, 46, 47, 50-52, 56, 57, 68-70, 74, 75, 86-88, 92, 93 and 97 are rejected under 35 U.S.C. 102(e) as being anticipated by Langberg et al. U.S. Patent 6,243,425.

7. Regarding claim 30, Langberg et al. disclose a ramping circuit (converter 130) configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

8. Regarding claim 31, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

9. Regarding claim 32, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

10. Regarding claim 36, the ramping circuit 130 receives the coefficients over channel 119.

11. Regarding claim 37, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

12. Regarding claim 40, Langberg et al. disclose a receiver, considered to comprise a decision feedback filter (ISI filter 64) and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from the decision feedback filter and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

13. Regarding claim 41, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

14. Regarding claim 42, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

15. Regarding claim 46, the ramping circuit 130 receives the coefficients over channel 119.

16. Regarding claim 47, the ramping circuit 130 transmits coefficient update information to the precoder filter via line 132.

17. Regarding claim 50, Langberg et al. disclose a transmitter, considered to comprise a precoder 94 and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to the precoder. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

18. Regarding claim 51, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

19. Regarding claim 52, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

20. Regarding claim 56, the ramping circuit 130 receives the coefficients over channel 119.

21. Regarding claim 57, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

22. Regarding claims 68 and 86, Langberg et al. disclose a communication system 115 in Fig. 5 comprising a plurality of DCEs (11, 14) each DCE inherently comprising a transmitter and a receiver which collectively include a decision feedback filter (ISI filter 64), a precoder 94, and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter of a complimentary transceiver and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output

information representative of the ramped output to the precoder. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

23. Regarding claims 69 and 87, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

24. Regarding claims 70 and 88, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

25. Regarding claims 74 and 92, the ramping circuit 130 receives the coefficients over channel 119.

26. Regarding claims 75 and 93, the ramping circuit 130 is considered to define part of the transmitter unit associated with the precoder filter.

27. Regarding claim 97, Langberg et al. a communications system where a message is received and is considered to be stored on a machine-readable media, wherein the message contains information processed according to a method where a precoder 94 precodes a signal and has coefficients that are calculated by a ramping circuit (converter 130) configured to receive equalizer coefficient values from a decision feedback filter (ISI filter 64) and determine a new set of precoder values for precoder 94 by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

Claim Rejections - 35 USC § 103

28. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

29. Claims 33-35, 38, 39, 43-45, 48, 49, 53-55, 58-67, 71-73, 76-85, 89-91, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Langberg et al.

30. Regarding claims 38, 48, 58, 76 and 94, Langberg et al. disclose a ramping circuit as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119 and is used in a modem in a communications transceiver. Langberg et al. does not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

31. Regarding claim 39, 49, 59, 77 and 95, Langberg et al. disclose a ramping circuit as described above, and further teach that the ramping circuit 130 receives the coefficients over channel 119 and is used in a modem in a communications transceiver. Langberg et al. does not expressly state that the transceiver is a DSL transceiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

32. Regarding claims 60 and 78, Langberg et al. disclose a communication system 115 in Fig. 5 comprising a plurality of DCEs (11, 14) each DCE inherently comprising a transmitter and a receiver which collectively include a decision feedback filter (ISI filter 64), a precoder 94, and a ramping circuit (converter 130), wherein the ramping circuit is configured to receive equalizer coefficient values from a decision feedback filter and determine a new set of precoder values by slowly changing the current set of precoder values to the new set of values by periodically incrementing each current precoder value a small amount, and output information representative of the ramped output to a precoder. Since initially, the current precoder values are determined during a previous training period, the set of first values are considered to be predetermined (see Fig. 6, col. 4, line 63 to col. 5, line 17).

33. Langberg et al. does not disclose that the ramping circuit of is placed in the receiver portion of the transceiver, and it receives filter tap coefficients from the transceiver's decision feedback filter and communicates the ramped output to a precoder of a complimentary transceiver.

34. However, placement of the ramping circuit in the receiver portion of the transceiver at the same remote location as the decision feedback filter, as opposed to placing the ramping circuit in the transmitter portion of the transceiver at the same remote location as the precoder is deemed a design consideration, as both configurations will produce the same ramping effect in the precoder coefficients.

35. Regarding claims 61 and 79, Langberg et al. disclose that the current precoder values are slowly changed to the new set of precoder values (see col. 5, lines 13-17, equation (1) – col. 5, line 31).

36. Regarding claims 62 and 80, Langberg et al. disclose that the current precoder values are incremented until they reach the calculated new set of precoder values (col. 6, lines 11-14).

37. Further regarding claims 66 and 84, Langberg et al. do not state that the receiver portion is part of a DSL receiver. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

38. Further regarding claims 67 and 85, Langberg et al. do not state that the ramping circuit is part of a DSL transmitter. However, DSL transceivers are well known in the art. It would have been obvious to one of ordinary skill in the art to implement the ramping circuit of Langberg et al. in a DSL system to take advantage of the utilization of the existing telephone wiring used in DSL networks.

39. Regarding claims 33-35, 43-45, 53-55, 63-65, 71-73, 81-83 and 89-91, Langberg et al. disclose a ramping circuit that provides a ramped output varied over time from a first value to a second value, as described above, but do not expressly state whether the output is ramped linearly or non-linearly. However, one of ordinary skill in the art would recognize that the output in the ramping circuit of Langberg et al. must be ramped either linearly or non-linearly (i.e. exponentially). Selection of the ramping to be either linear or to exponential is deemed a design consideration that fails to patentably distinguish over the prior art of Langberg et al.

Conclusion

40. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David B. Lugo** whose telephone number is **(703) 305-0954**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

dl
1/8/04

YOUNG T. TSE
PRIMARY EXAMINER